Appl. No. **10/734,318**
Amdt dated July 25, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (currently amended):   A method for ~~generating~~ enhancing printability of a complementary mask ~~data for use~~ in a sub-wavelength photolithographic process, the method comprising:

receiving ~~a first mask~~ data corresponding to ~~the~~ a complementary mask;

wherein the complementary mask is designed for use with a phase shifting mask;

wherein a pattern represented by said data of the complementary mask defines a number of openings that expose unwanted photoresist located between regions exposed via the phase shifting mask during the sub-wavelength photolithographic process;

identifying from among said openings, a plurality of critical openings ~~in the first mask data~~ as being too small to print due to intensity of radiation passing therethrough being ineffective in exposing said unwanted photoresist during the sub-wavelength photolithographic process;

determining a threshold intensity for radiation passing through the plurality of critical openings during the sub-wavelength photolithographic process, to be effective in erasing the unwanted photoresist;

modifying at least a portion of the data representing the plurality of critical openings such that each of the plurality of critical openings will provide radiation of at least the threshold intensity during the sub-wavelength photolithographic process.

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2 (currently amended):   The method of claim 1, wherein modifying comprises:

increasing the area of at least one ~~cut~~ opening in said plurality of critical openings.

3 (currently amended):   The method of claim 2, wherein:

the increase in area is substantially proportional to the difference between:

a maximum intensity of radiation passing through the opening

prior to increasing; and

said threshold intensity.

4 (currently amended):   The method of claim 2, wherein:

wherein said at least one opening is defined by a group of edges in said pattern;

the increase in area is accomplished by moving ~~at least one edge that does~~ an

edge in said group that does not abut any feature to be ~~formed~~ printed in an integrated

circuit by use of the phase shifting mask, while maintaining unmoved any edge in the

group that abuts said feature to be printed.

Claim 5 (canceled).

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6 (currently amended):   The method of claim [[5,]] 1 wherein identifying ~~the openings~~

comprises:

modeling exposures through ~~the~~ a phase shifting mask and the complementary

mask to produce a result; and

examining the result.

7 (currently amended):   The method of claim [[5,]] 1 wherein the modifying comprises:

simplifying ~~the mask~~ a complex shape of at least one critical opening into a basic

shape having fewer edges.

Claims 8-22 (canceled).

23 (new):   The method of claim 1 wherein:

each critical opening is sufficiently small to be modeled by a pin hole.

24 (new):   A method for enhancing printability of a mask in a sub-wavelength

photolithographic process, the method comprising:

receiving data corresponding to a mask;

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identifying at least one opening in a pattern represented by the data, for being

ineffective in allowing radiation passing therethrough to print said opening on photoresist,

during the sub-wavelength photolithographic process;

wherein said opening is defined by a group of edges in said pattern;

modifying at least a portion of said data representing said opening, to allow passage

therethrough of radiation sufficient to print said opening;

wherein the modifying comprises moving an edge in said group that does not abut

any feature to be printed in an integrated circuit while maintaining unmoved any edge in

the group that abuts said feature to be printed.

25 (new):   The method of claim 24 further comprising:

generating an aerial image of the mask;

wherein the critical openings have areas too small to generate at least a

predetermined maximum intensity of radiation in said aerial image.

26 (new):   A method for enhancing printability of a mask in a photolithographic process,

the method comprising:

receiving data corresponding to a mask;

identifying at least one opening in a pattern represented by the data, for

ineffectiveness of radiation passing therethrough, to print said opening on photoresist

during the photolithographic process;

wherein said opening is defined by a group of edges in said pattern;

modifying at least a portion of said data representing said opening, to allow passage therethrough of radiation sufficient to print the said opening on photoresist;

wherein the modifying comprises simplifying a complex shape of said opening into a basic shape having fewer edges.